EXHIBIT 2

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA

MARY T. THOMAS, *et al.*, *Plaintiffs*, v. MARCI ANDINO, in her official capacity as Executive Director of the South Carolina State Election Commission, *et al.*, *Defendants*.	Case No.: 3:30-cv-01552-JMC

DECLARATION OF DR. ARTHUR L. REINGOLD

Pursuant to 28 U.S.C. § 1746, I hereby declare as follows:

1. I am the Division Head of Epidemiology and Biostatistics at the University of California, Berkeley, School of Public Health. I have worked on the prevention and control of infectious diseases in both the United States, including eight years at the US Centers for Disease Control and Prevention ("CDC"), and with numerous developing countries around the world for over forty years. Since its inception in 1994, I have directed or co-directed the CDC-funded California Emerging Infections Program. I am a member of the Society for Epidemiologic Research and the American Epidemiological Society; an elected Fellow of the Infectious Disease Society of America and of the American Association for the Advancement of Science; and an elected member of the Institute of Medicine of the National Academy of Sciences. I was previously the President of both the Society for Epidemiologic Research and the American Epidemiological Society. I have served on the editorial boards of the journals: American Journal of Epidemiology, Epidemiology, and Global Public Health.

2. I received my A.B. in biology from the University of Chicago in 1970, and my M.D. from the University of Chicago in 1976. Among other things, I completed a residency in internal medicine and a preventative medicine residency with the CDC.

3. My career in public health has been in the area of infectious diseases and epidemiology. Following my positions at the CDC (1979–87), I joined the faculty of the School of Public Health at Berkeley as a Professor of Epidemiology (1987–present), the faculty of the Department of Epidemiology and Biostatistics at the University of California, San Francisco ("UCSF") (1989–present), and as a Clinical Professor in the Department of Medicine at UCSF (1991–present). From 1990–94, I was the Head of the Epidemiology Program, Department of Biomedical and Environmental Health Sciences, University of California, Berkeley; from 1994–2000, I was the Head of the Division of Public Health Biology and Epidemiology, University of California, Berkeley; from 2000–18, I was the Head of the Division of Epidemiology, School of Public Health, University of California, Berkeley; from 2018 continuing through the present, I am the Head of the Division of Epidemiology and Biostatistics, School of Public Health University of California, Berkeley.

4. My research focuses on emerging and re-emerging infections in the United States and in developing countries; vaccine-preventable diseases in the United States and in developing countries; and disease surveillance, outbreak detection, and outbreak response.

5. Attached and incorporated by reference to this declaration is a copy of my curriculum vitae. (Attached here as Attachment A).

6. I am currently collaborating on research concerning SARS-CoV-2 and its incidence, and serving on SARS-CoV-2 advisory groups for multiple organizations, including UC Berkeley, the University of California system, and the City and County of San Francisco, among

others.

7. SARS-CoV-2 is a novel coronavirus that causes Coronavirus Disease 2019 (COVID-19). The virus is a respiratory virus with patients typically presenting with acute respiratory signs and symptoms, which can escalate in some patients to respiratory failure and other serious, life-threatening complications. The most common symptoms are fever, cough, and shortness of breath. Other identified symptoms include muscle aches, headaches, chest pain, diarrhea, coughing up blood, sputum production, runny nose, nausea, vomiting, sore throat, confusion, lack of senses of taste and smell, and anorexia. Due to the respiratory impacts of the disease, individuals may need to be put on oxygen, and in severe cases, patients may need to be intubated and put on a ventilator. People of every age can and have contracted COVID-19, including severe cases, but geriatric patients are at the greatest risk of severe cases, long-term impairment, and death. Likewise, those with immunologic conditions and with other pre-existing conditions, such as hypertension, certain heart conditions, lung diseases (e.g., asthma, COPD), diabetes mellitus, obesity, and chronic kidney disease, are at high risk of a life-threatening COVID-19 illness. Information available to date shows that, if infected with the SARS-CoV-2 virus, racial and ethnic minority populations, especially African-Americans, are at a substantially elevated risk of developing life-threatening COVID-19 illnesses and to die of COVID-19.

8. SARS-CoV-2 is readily spread through respiratory transmission. All people are susceptible to and capable of getting COVID-19 because of the ease with which it spreads. The virus is spread through droplet transmission; that is, when an infected individual speaks, coughs, sneezes, and the like, they expel droplets which can transmit the virus to others in their proximity. Though not yet determined, scientists are currently assessing whether the virus is aerosolized, such that tiny droplets containing the virus remain in the air and can be inhaled by others who come

into contact with that air. The virus is also known to be spread through the touching of contaminated surfaces, for example, when an infected person touches a surface with a hand they have coughed into and then another person touches that same surface before it has been disinfected and then touches their face. Each infected individual is estimated to infect two to eight others. In addition, some people are so-called "superspreaders," who cause widespread infections.

9. Diagnostic testing for the virus is currently most often done through use of a reverse-transcriptase polymerase chain reaction (RT-PCR) test. There has not been sufficiently wide-spread and easily accessible testing throughout the United States, including in South Carolina. Serologic tests, which detect antibodies to the virus and thus indicate whether someone has already been exposed to it, are being developed but have not yet been validated or produced at scale.

10. There is not yet any FDA-approved vaccine against SARS-CoV-2, which could be used to immunize the population to the virus. As a result, the only ways to limit its spread are self-isolation, social distancing, frequent handwashing, and disinfecting surfaces. Self-isolation involves not physically interacting with those outside one's household. Social or physical distancing is maintaining at least six feet of distance between individuals. Both of these interventions are aimed at keeping infected individuals far enough apart from other individuals so that they do not pass the virus along. Frequent handwashing and regular disinfecting of surfaces curb the spread via contaminated surfaces.

11. Transmission of SARS-CoV-2 can occur in any location where there is close proximity (less than six feet) between individuals. And because transmission of the virus can occur via environmental surfaces, there is also risk of spread of the virus at any location where multiple individuals touch surfaces. Some individuals who are infected with the virus do not have

any symptoms but can transmit the virus and/or are infectious before they develop any symptoms. This means that isolating only persons known to be infected will not stop the spread of infection. Rather, to prevent increasing the scope of the outbreak of COVID-19, we must assume that anyone could be infected and infect another person.

12. Due to the lack of adequate testing, the time lag in getting results back from laboratories, and the lengthy incubation time, we cannot yet definitely determine the full effects of stay-at-home orders and social distancing. But social distancing has worked to slow the spread of respiratory viruses generally and in places that are ahead of South Carolina and the United States in the current pandemic. There is evidence that cities and states that have implemented stay-at-home orders earlier than South Carolina are experiencing reduced transmission. Current modeling shows that social distancing and stay-at-home orders are lessening transmission. However, transmission of the virus will continue through the population until the development and widespread use of a vaccine and/or herd immunity.

13. It is unlikely that an FDA-approved vaccine will be available for approximately 12 to 18 months, and indeed may take longer than that due to the number of steps in the process of development, trial and error, scaling to clinical trials, assessing side effects, and assessing efficacy across the population at large.

14. Herd immunity occurs when a high percentage of the population become immune to an infectious disease, such that the spread is dramatically slowed, as infected persons can become dead-ends for the virus, so to speak, because they are not interacting with anyone to whom they can transmit the virus. Approximately 80-95% of a population must be immune in order to achieve herd immunity, depending on the infectiousness of the agent. In this context, an individual's immunity can come from either a vaccine or from previous infection. Herd immunity

can protect those in a population who cannot be vaccinated and for whom infection can be particularly serious. Without herd immunity, we can expect that COVID-19 will continue to transmit widely.

15. As SARS-CoV-2 is a new virus, also referred to as a novel virus, only those who have been infected and recovered are possibly immune; there is not a pre-existing population already immune to the virus. Anyone who has not yet been infected is susceptible to infection. Also, due to the virus's novelty, we do not know whether any immunity generated by previous infection lasts permanently, for a specified period, or whether reinfection is possible. As a result, herd immunity is unlikely unless and until the development and widespread use of an effective vaccine or a sufficiently high proportion of the population has been infected. Only once serologic antibody testing is widely available will we be able to determine who in the population is not susceptible to either infection or transmission based on their immunity due to earlier infection. As a result, even if transmission slows due to behavioral interventions such as social distancing and stay-at-home orders, we can expect resurgences of COVID-19, including significant community transmission, throughout 2020 and into 2021 across the United States, until the development and widespread use of a vaccine. Such resurgence is particularly likely if/when these behavioral modifications are lifted when community transmission is still continuing.

16. As SARS-CoV-2 is novel, we also cannot say definitively whether its incidence and prevalence will rise and fall based on weather / what season it is. If virus transmission and prevalence do decline over the summer months, it remains likely that they will resurge in the fall and winter. However, certain other coronaviruses—such as SARS and MERS-CoV—do not appear to demonstrate seasonality of infection. And the current virus has circulated widely in countries currently in their hot seasons. These two points suggest that transmission of and infection

with the virus may not be affected by the weather.

17. Due to the ease of transmission, the high risk to certain parts of the population, and the fact that the virus will continue to surge unless and until wide-spread vaccination and/or herd immunity is achieved, individuals will need to continue to take steps to prevent infection. Polling locations are a prime area for increased transmission of SARS-CoV-2 due to the close proximity of a large number of individuals—voters, observers, poll workers—in a limited space. A polling location also has a large number of common surfaces that multiple people touch: the doors, the poll books to sign in, pens, voting booths, and voting machines. Due to the transmission of the virus via contaminated environmental surfaces, polling locations are highly likely to cause increased infection. My opinion has been further confirmed by reports like the one from health officials in Milwaukee, Wisconsin, who have reported that six voters and a poll worker have been identified as having contracted SARS-CoV-2 via in-person voting in the primary election held on April 7, 2020.[1] This is one example of the risks of transmission I have described. Widespread vote-by-mail or absentee balloting would be a much safer option for public health, in light of COVID-19, as it would vastly decrease the number of individuals needing to vote in person and thus substantially decrease the number of people coming into proximity at polling locations and the spread via environmental surfaces.

18. With widespread vote by mail, however, for individuals without another person able to witness in their household, the requirement that they have someone witness their absentee ballot would place them at increased risk of exposure to and/or transmission of COVID-19. Requiring individuals to have someone they are not otherwise being exposed to come into close enough

[1] Nick Corasaniti & Reid J. Epstein, "At Least Seven in Wisconsin Contract Coronavirus During Voting," N.Y. Times, Apr. 21, 2020.

proximity to witness their ballot would place them at increased risk of infection. This would be particularly risky for those who are at a greater risk of complications and death from COVID-19.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 21, 2020.

Dr. Arthur L. Reingold